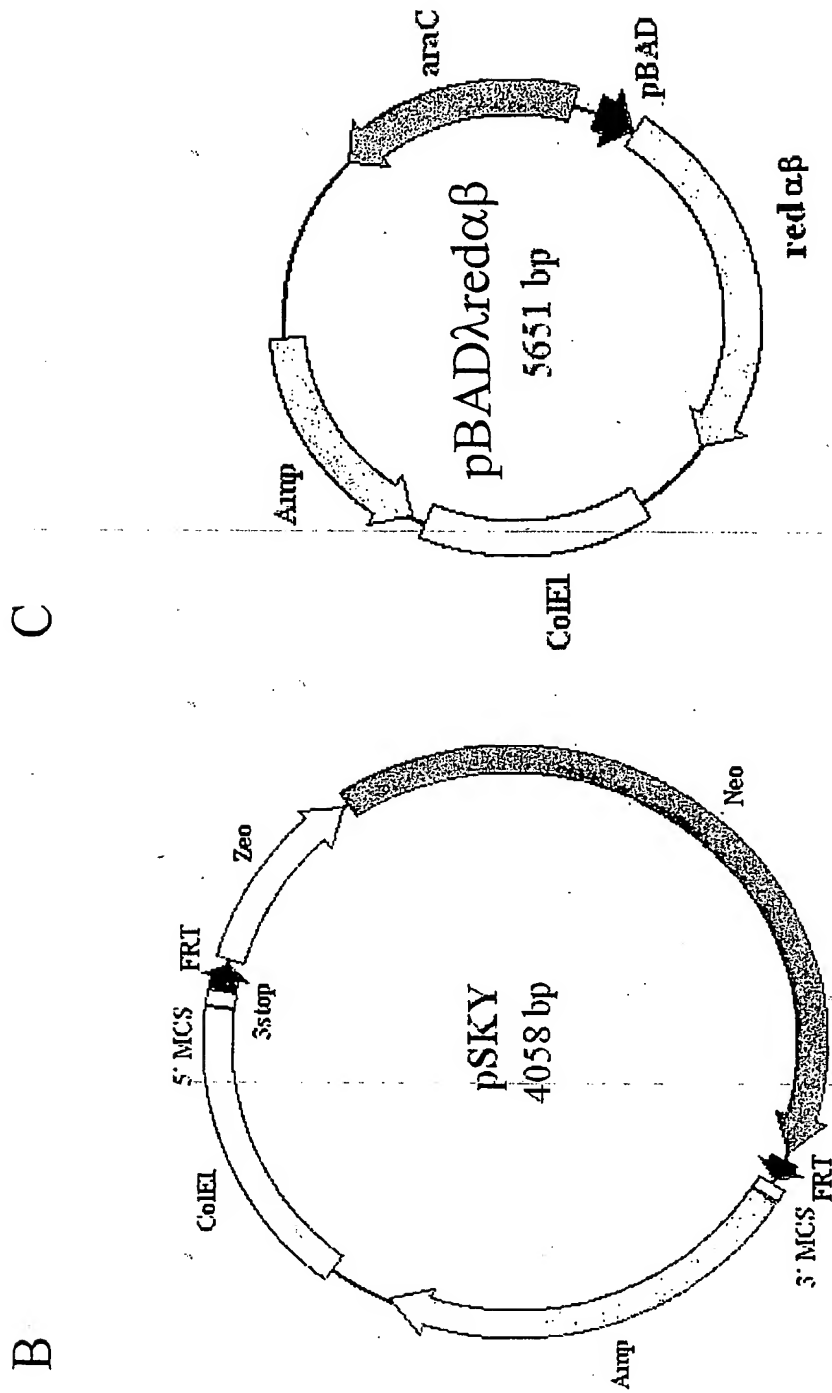


Figure 1A



Figures 1B and 1C

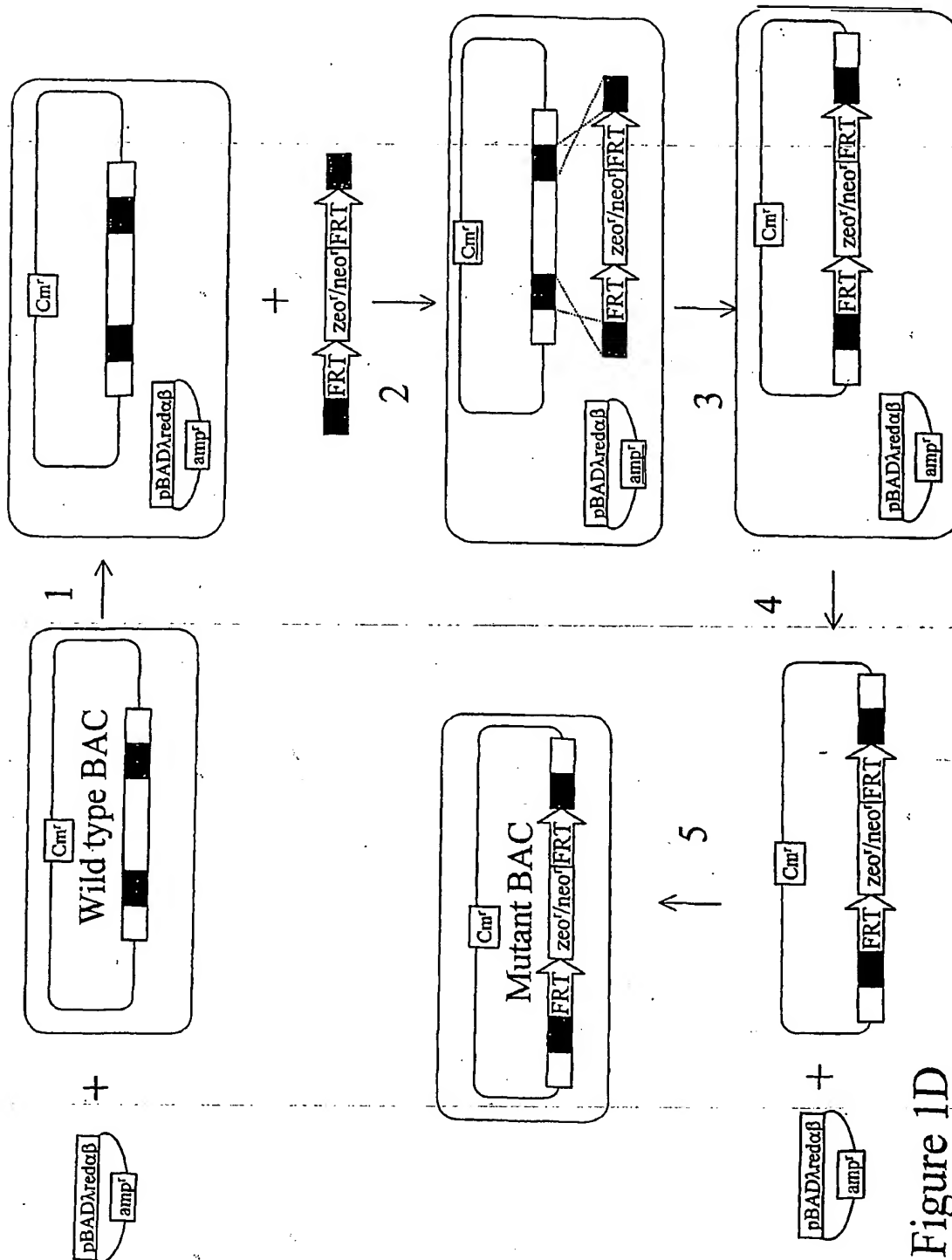


Figure 1D

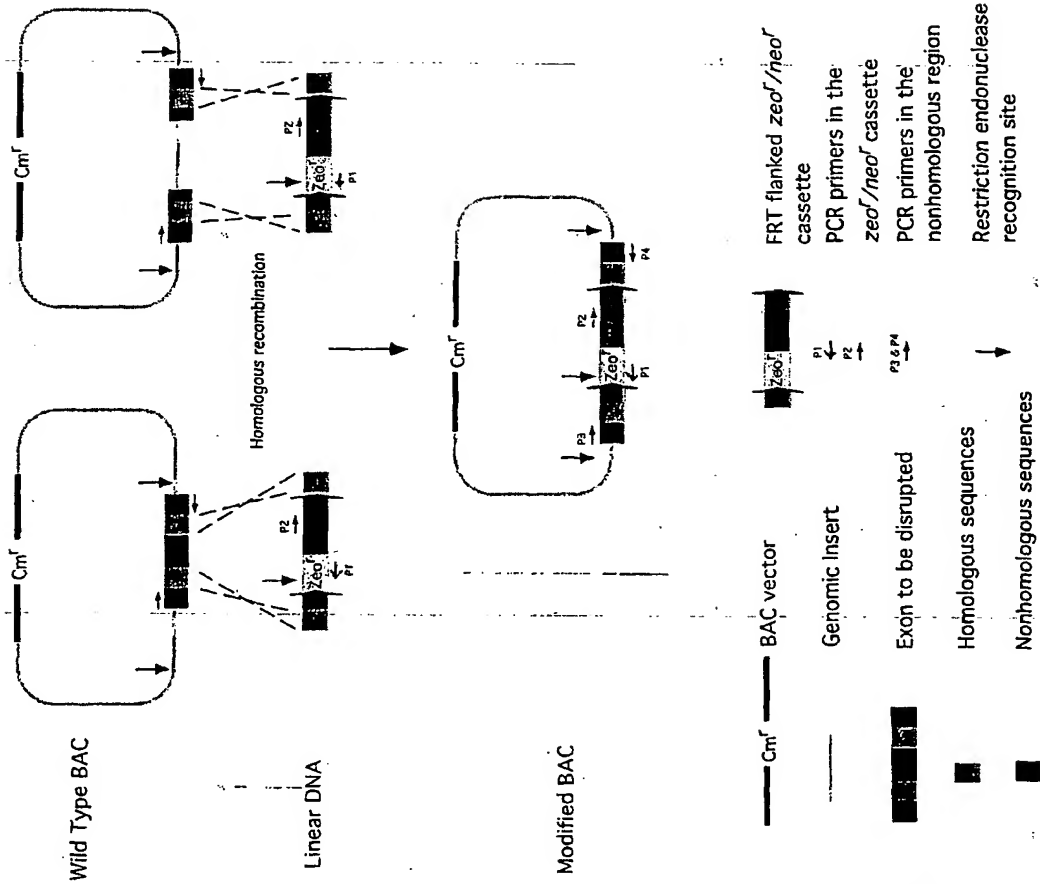
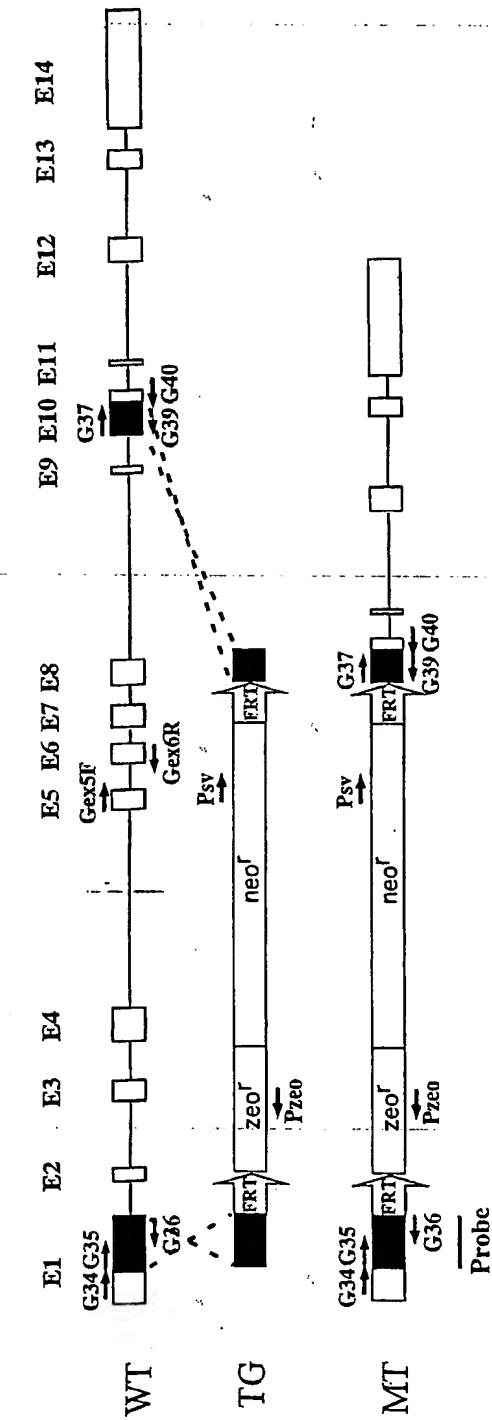
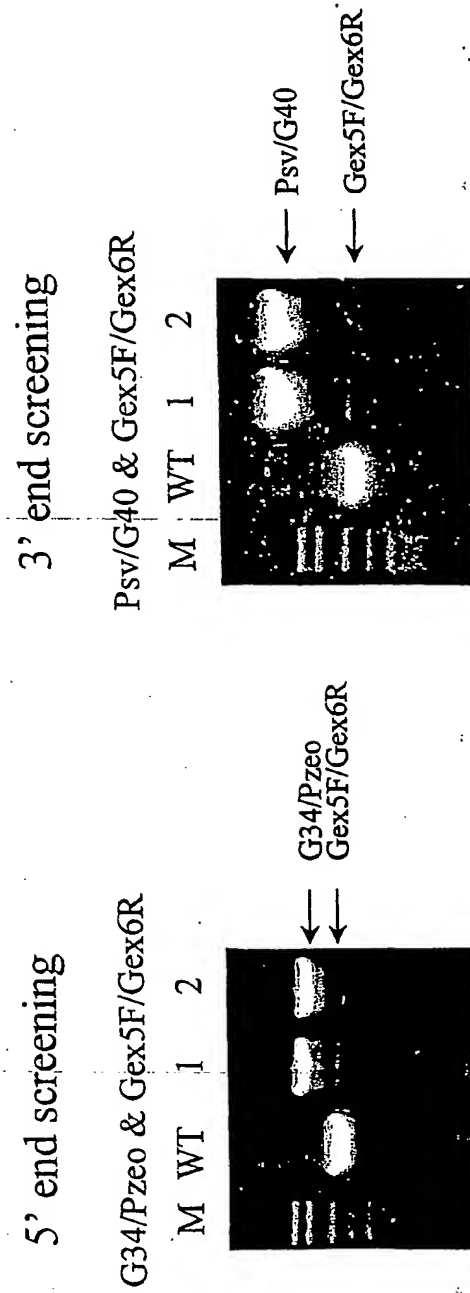
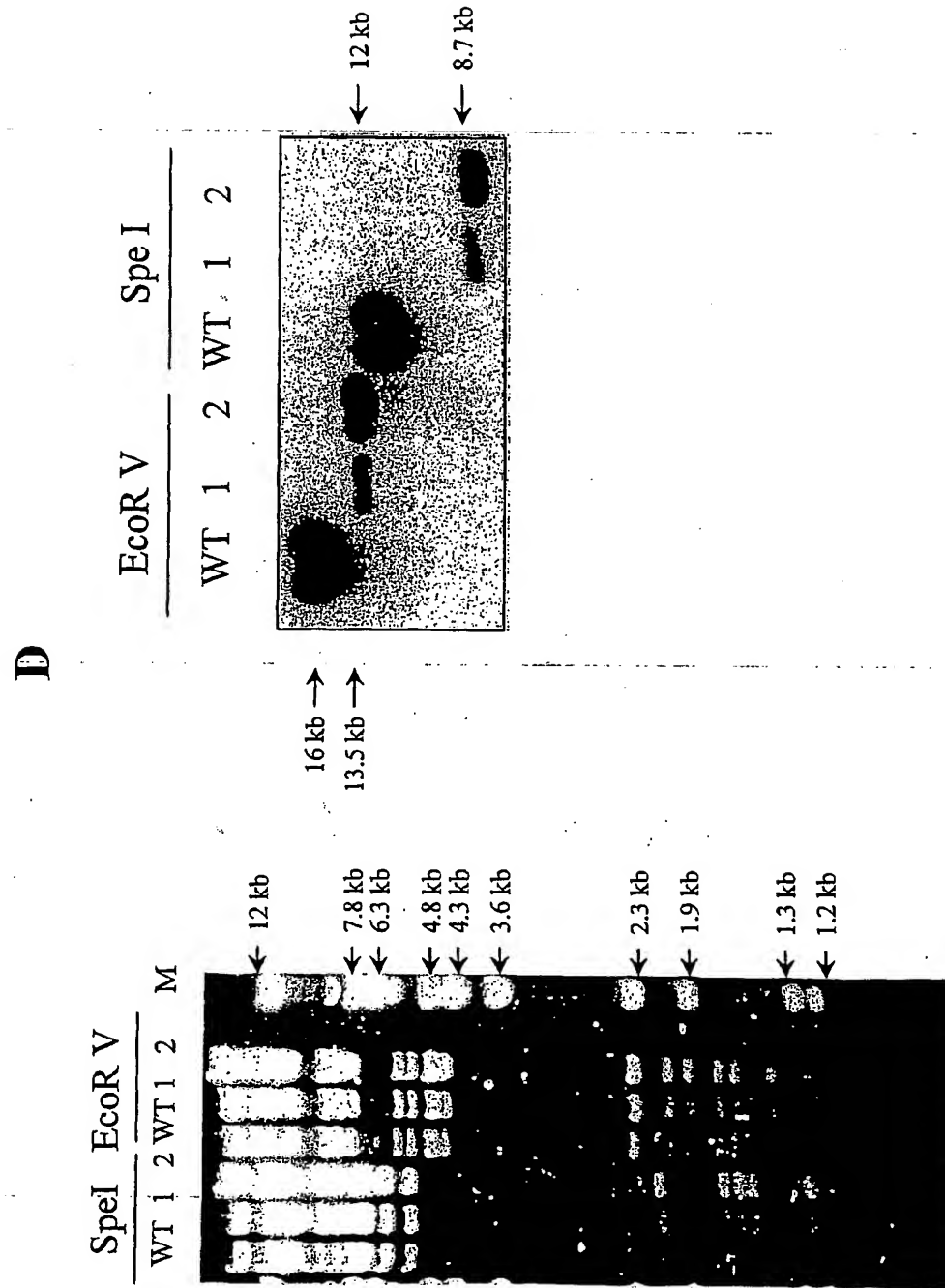


FIGURE 1E

**B**

Figures 2A and 2B



Figures 2C and 2D

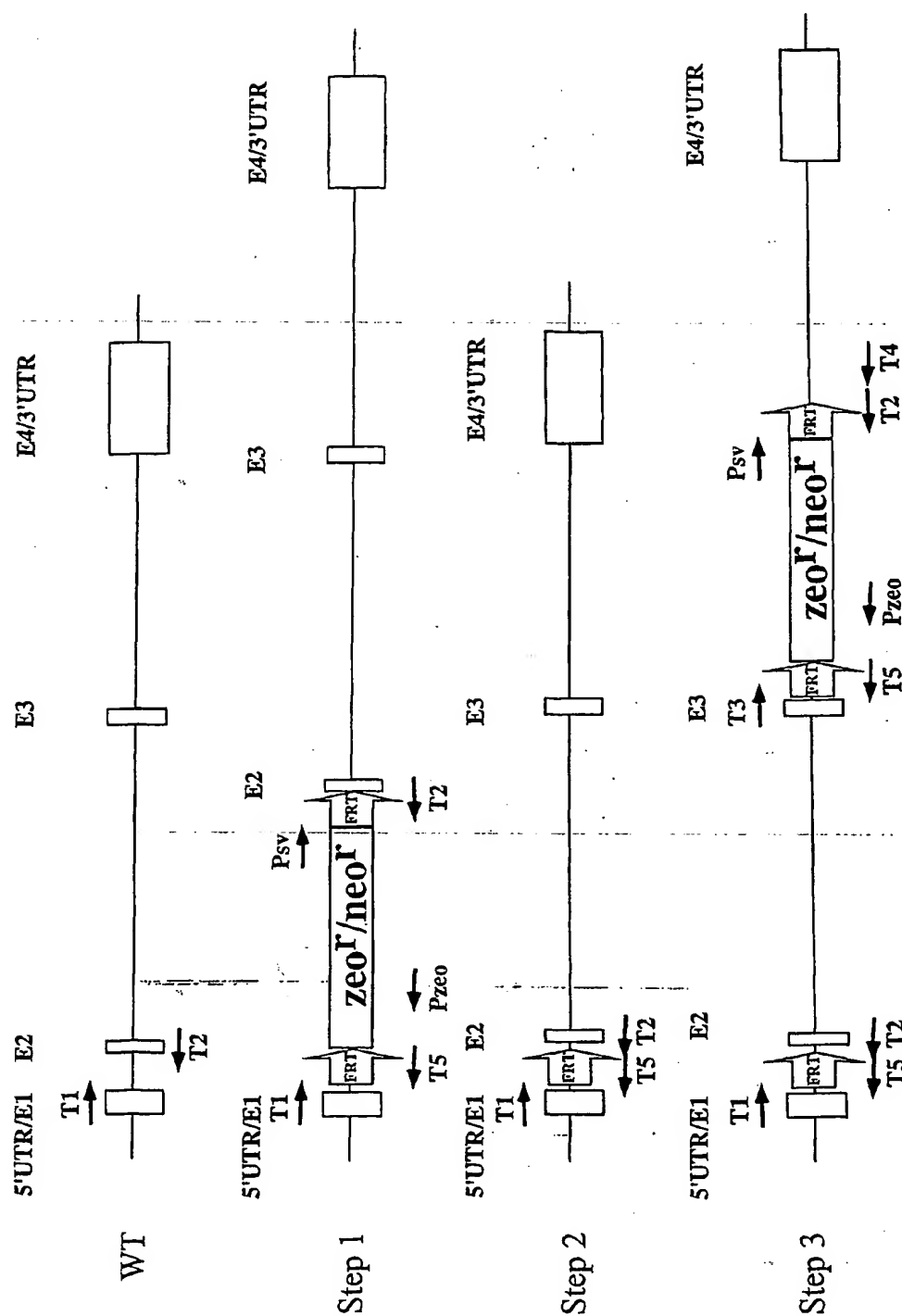


Figure 3A

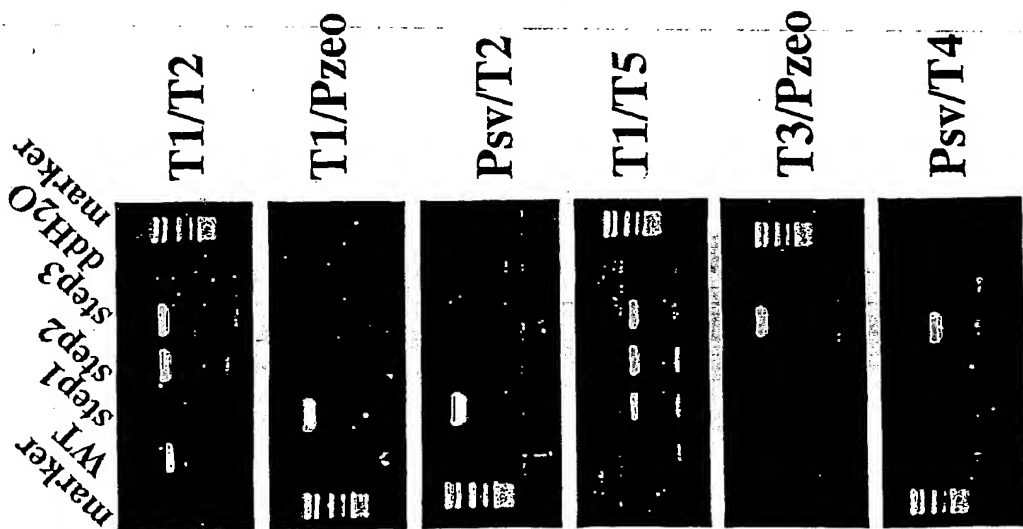
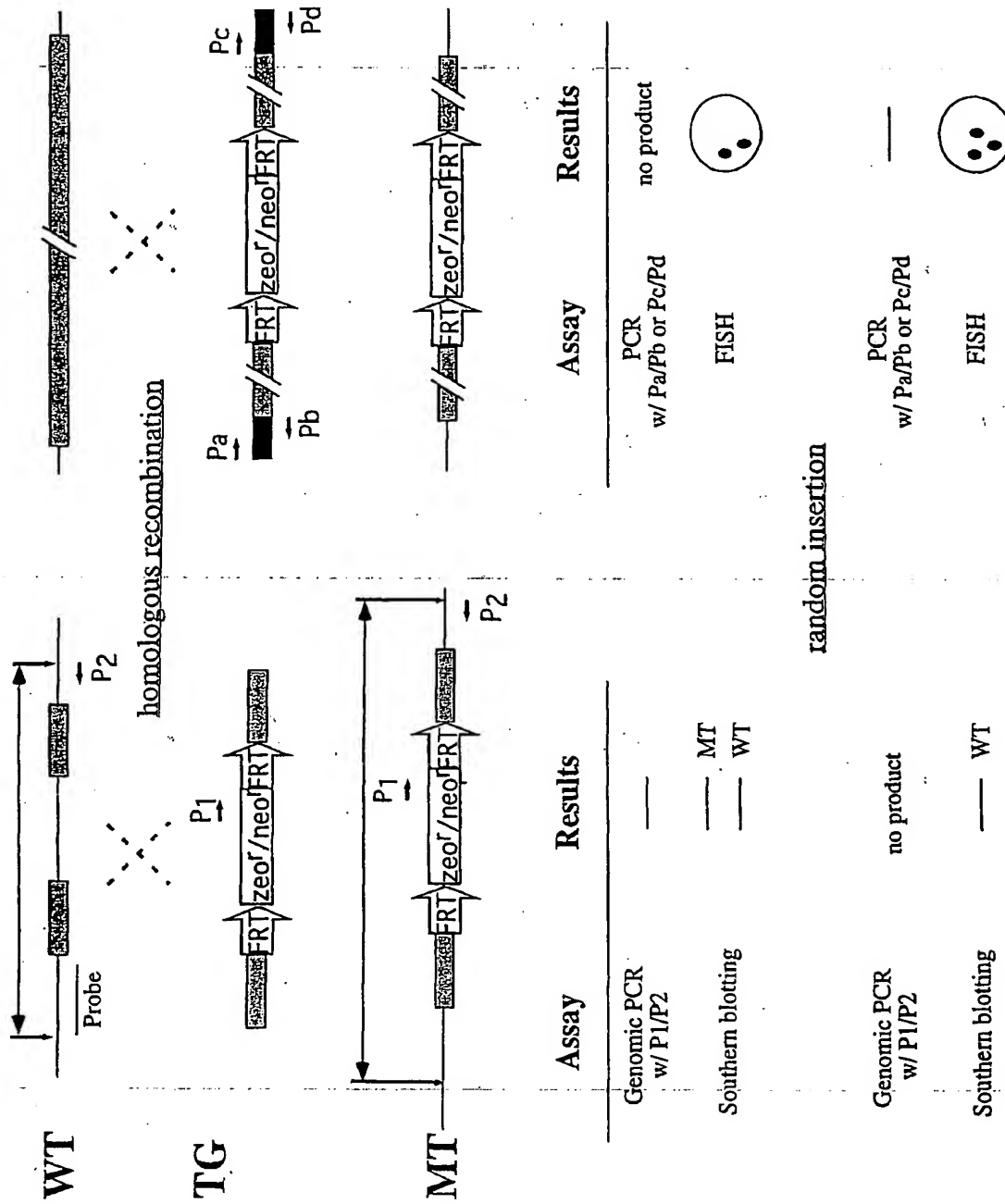


Figure 3B



A Figures 4A and 4B

B



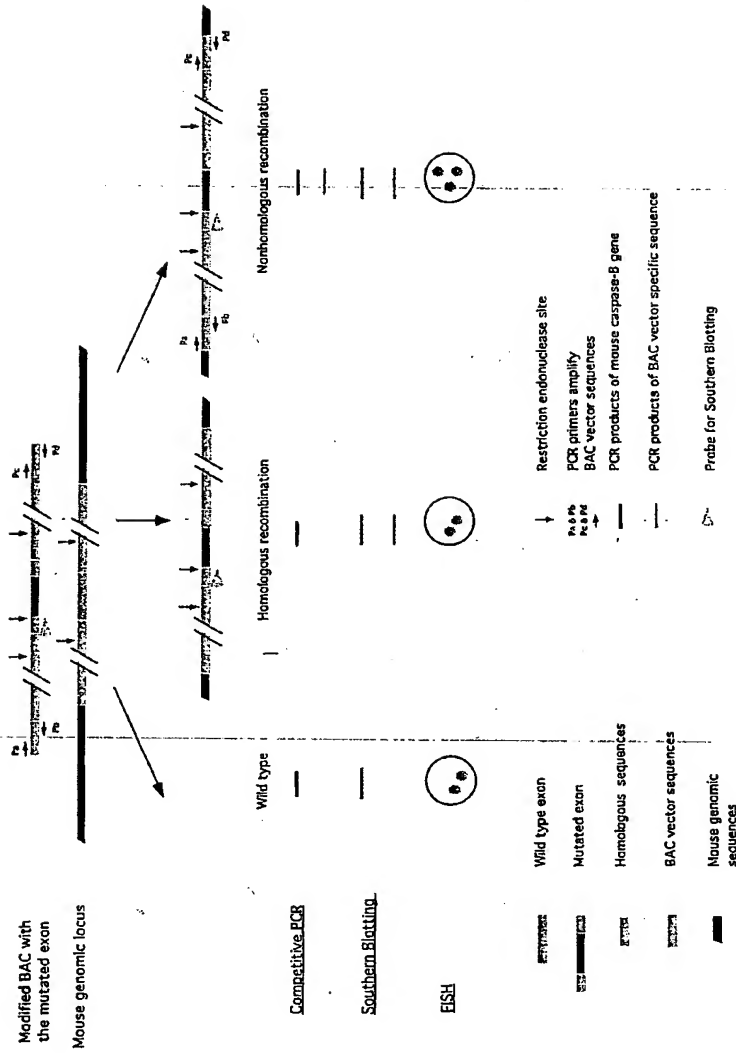
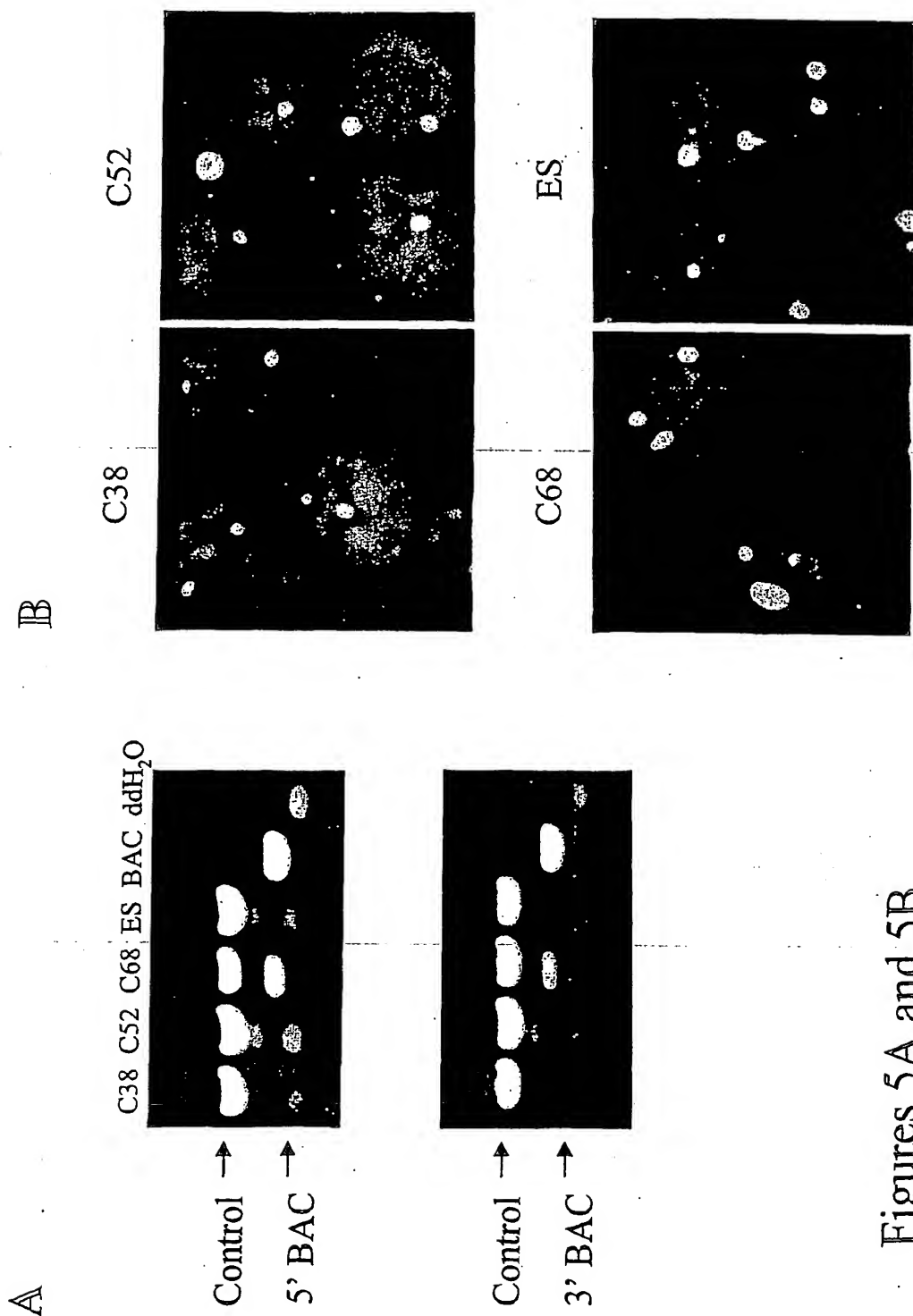


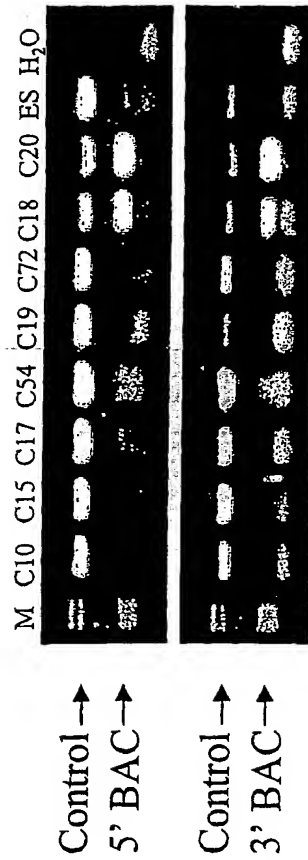
Figure 4C



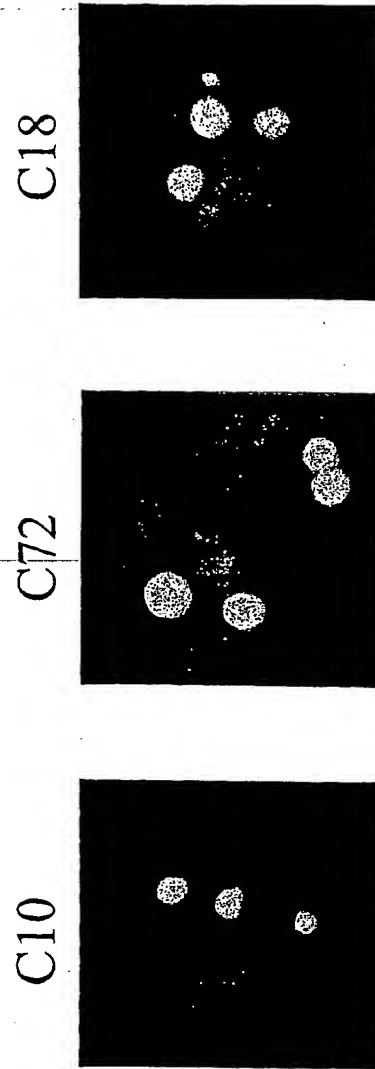
Figures 5A and 5B

Figures 6A and 6B

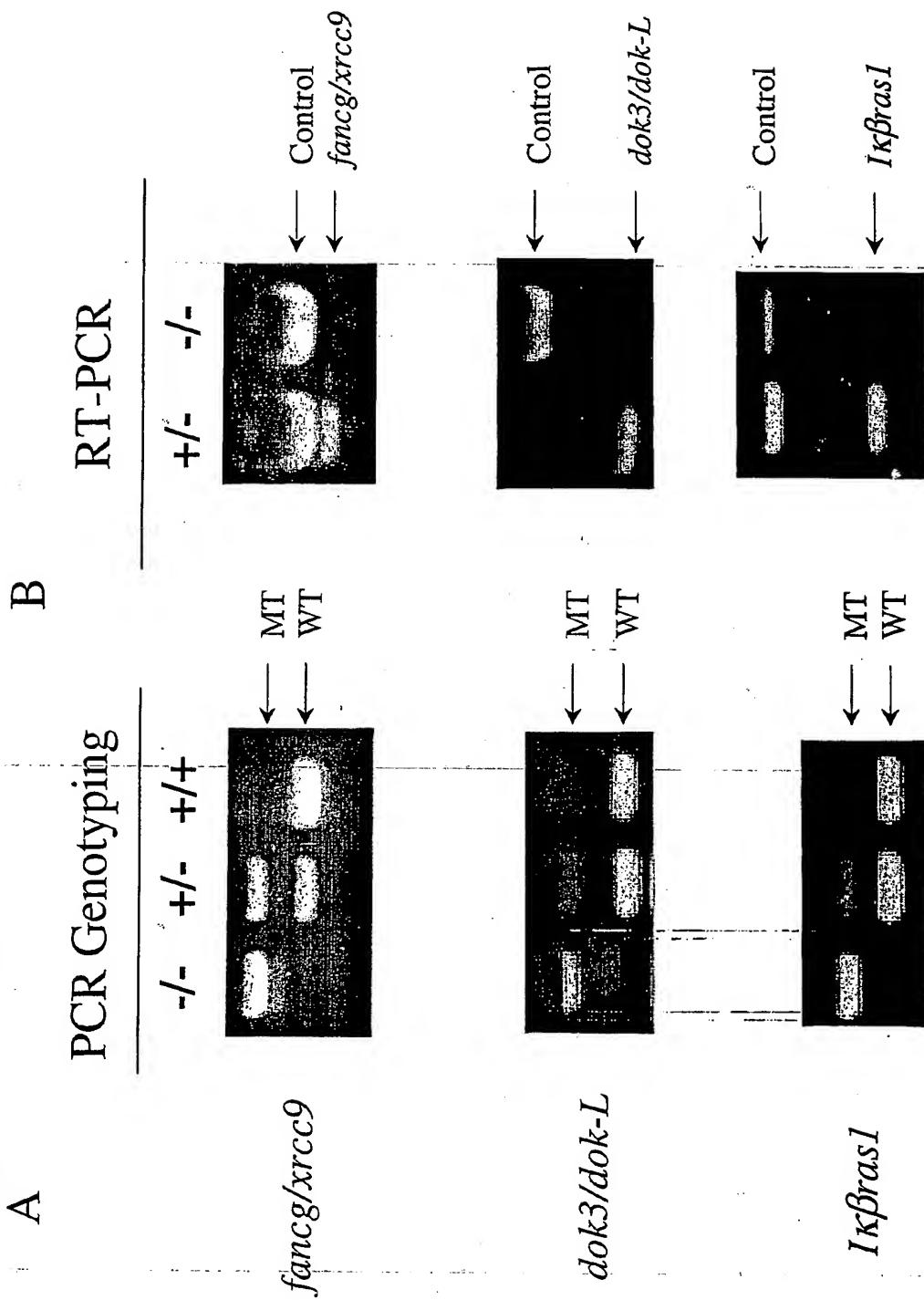
A



B

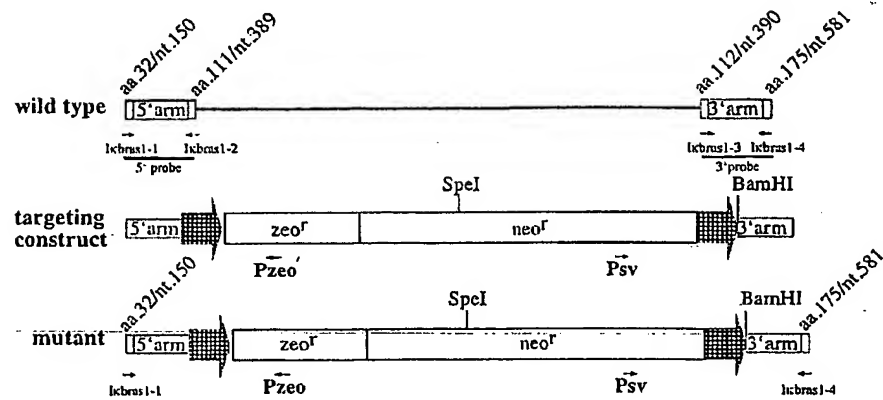


Figures 7A and 7B

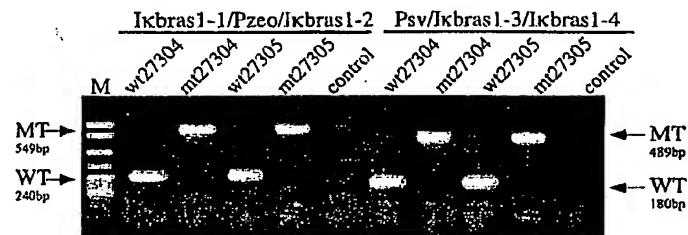


## Figures 8A-8D

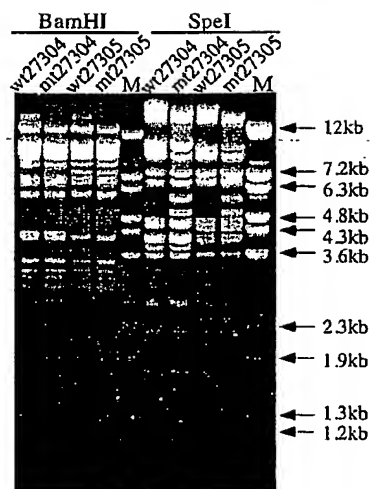
A



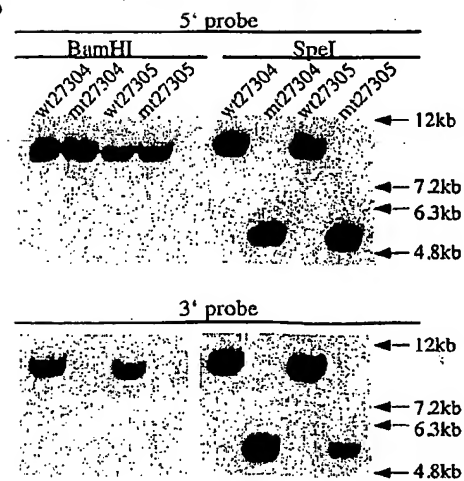
B



C



D



## Figures 9A-9D

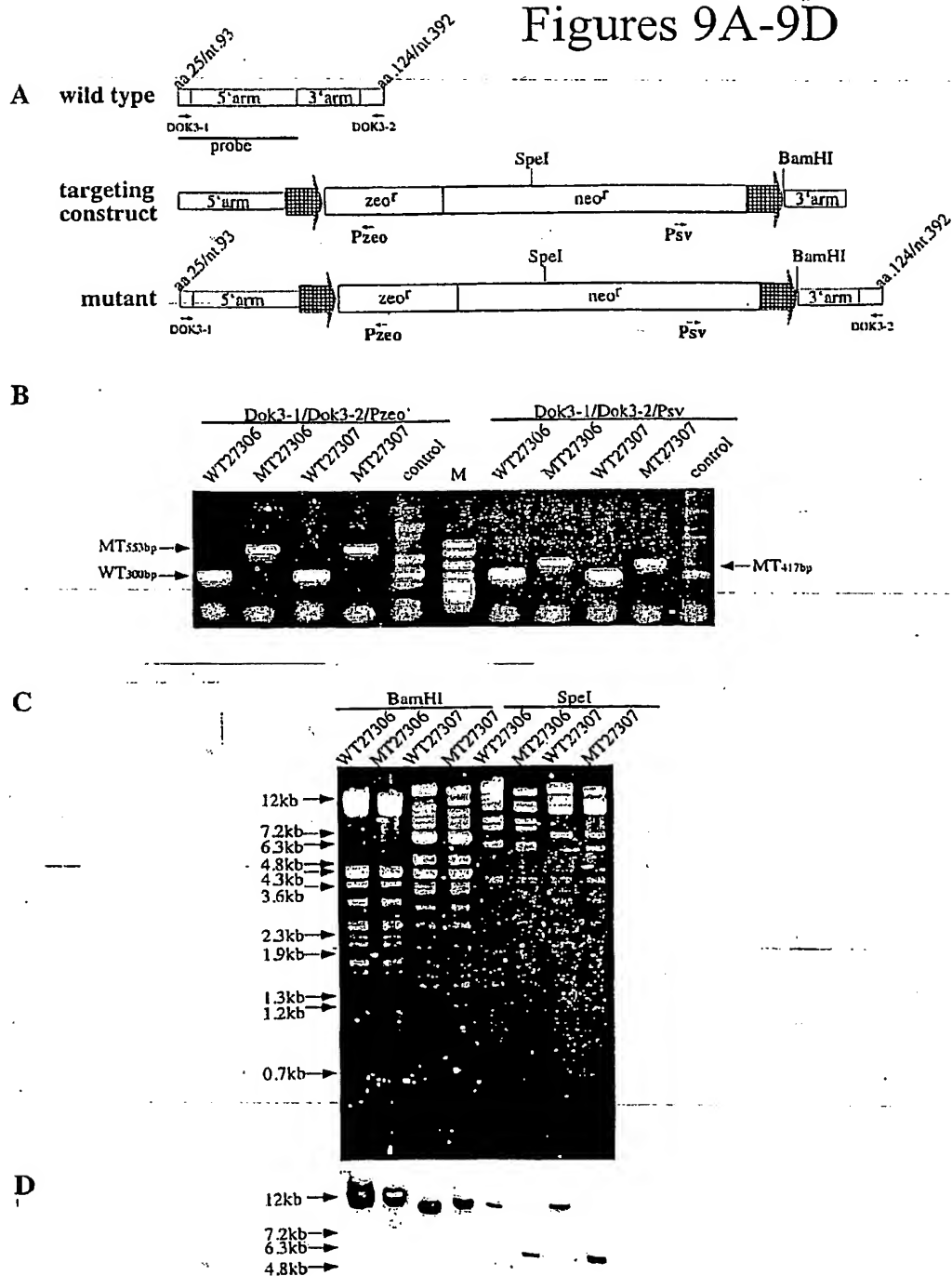


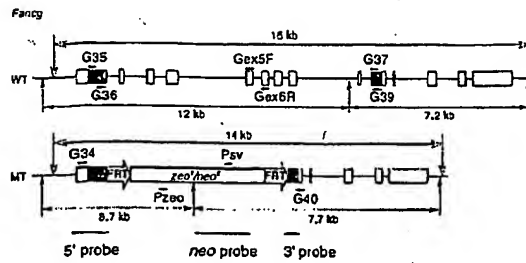
Figure 10

| Gene/Clone           | 5'arm (nt) | 3'arm (nt) | Deletion (nt) | Efficiency* |
|----------------------|------------|------------|---------------|-------------|
| <i>fancg/xrcc9</i>   | 480        | 260        | 4900          | 100%        |
| <i>Iκβras1.#1</i>    | 185        | 138        | unknown       | 30%         |
| <i>Iκβras1.#2</i>    | 185        | 138        | unknown       | 25%         |
| <i>tab2.#1</i>       | 213        | 340        | 869           | 30%         |
| <i>tab2.#2</i>       | 213        | 340        | 869           | 50%         |
| <i>pag.#1</i>        | 105        | 373        | no            | 100%        |
| <i>pag.#2</i>        | 105        | 373        | no            | 58%         |
| <i>pag.#3</i>        | 105        | 373        | no            | 100%        |
| <i>dok3/dok-L.#1</i> | 188        | 93         | no            | 42%         |
| <i>dok3/dok-L.#2</i> | 188        | 93         | no            | 30%         |
| <i>bruce</i>         | 50         | 50         | no            | 100%        |

\*The efficiency was calculated based on nested PCR screening of 24 ampicillin and chloramphenicol double resistant colonies at the 3' integration site.

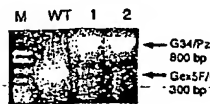


11A

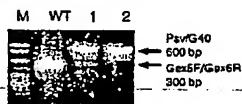


11B

5' end screening



3' end screening

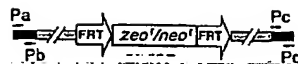


12A

WT

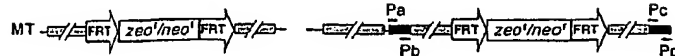


TG

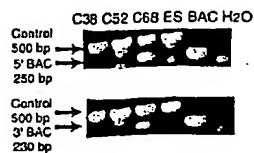


Homologous recombination

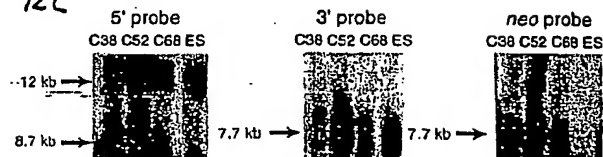
Random insertion



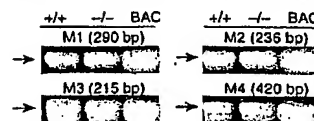
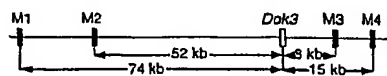
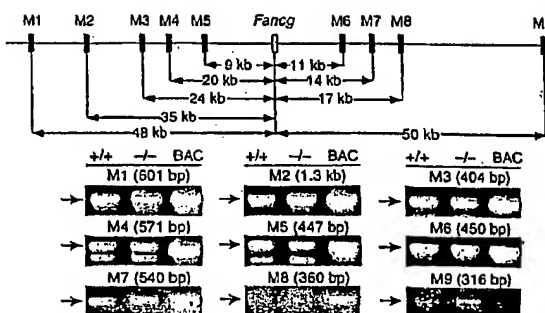
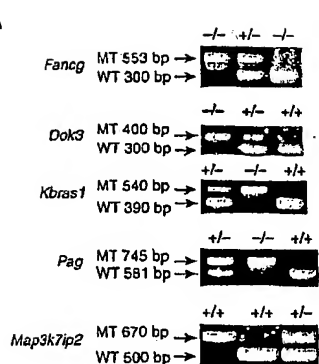
12B



12C



13 A

13 B

*Fancg* Control 350 bp →  
WT 300 bp →

*Dok3* Control 500 bp →  
WT 300 bp →

*Kbras1* Control 500 bp →  
WT 240 bp →

*Pag* WT 580 bp →  
Control 500 bp →

M1 M2 *Kbras1* M3

40 kb 9 kb 52 kb

*Kbras1* BAC

M1 (540 bp) M2 (355 bp) M3 (180 bp)

19/22

Figure 14

| Gene           | PCR screening/96 colonies |        |        |             |                            | FISH screening  |         |         | Effective targeting efficiency <sup>c</sup> |
|----------------|---------------------------|--------|--------|-------------|----------------------------|-----------------|---------|---------|---|
|                | no signal <sup>a</sup>    | 5' BAC | 3' BAC | 5' & 3' BAC | no BAC signal <sup>b</sup> | clones screened | 2 spots | 3 spots |   |
| <i>FANCG</i>   | 36                        | 4      | 6      | 28          | 22 (37%)                   | 4               | 3 (75%) | 1       | 28%   |
| <i>XRCC9</i>   |                           |        |        |             |                            |                 |         |         |   |
| <i>IκBRS1</i>  | 1                         | 16     | 12     | 15          | 52 (55%)                   | 27              | 6 (22%) | 21      | 12%   |
| <i>CBP/PAG</i> | 6                         | 10     | 5      | 32          | 43 (48%)                   | 16              | 7 (44%) | 9       | 21%   |
| <i>DOK3</i>    |                           |        |        |             |                            |                 |         |         |   |
| <i>DOK-L</i>   | 6                         | 12     | 9      | 55          | 14 (16%)                   | 11              | 5 (45%) | 6       | 7%  |
| <i>TAB2</i>    | 16                        | 8      | 16     | 27          | 29 (36%)                   | 10              | 2 (20%) | 8       | 7%  |

a. A high PCR failure rate (internal control negative) was seen with *FANCG/XRCC9* prior to the introduction of improved protocols.

b. Percentage calculation denominator excludes PCR failures.

c. The percentage with no vector signal multiplied by the percentage with two FISH spots.

10/521634

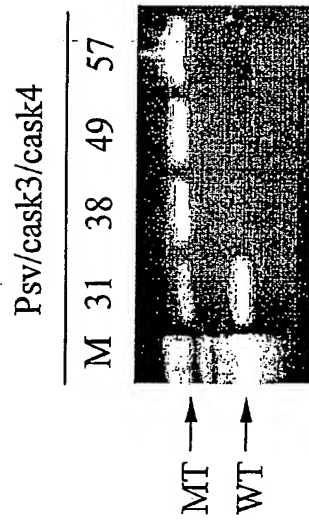


FIGURE 15

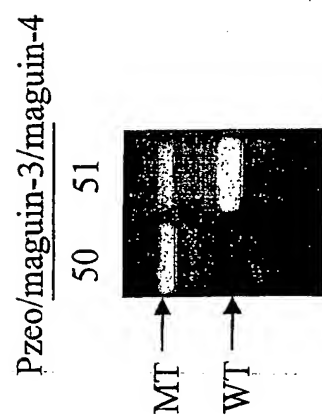
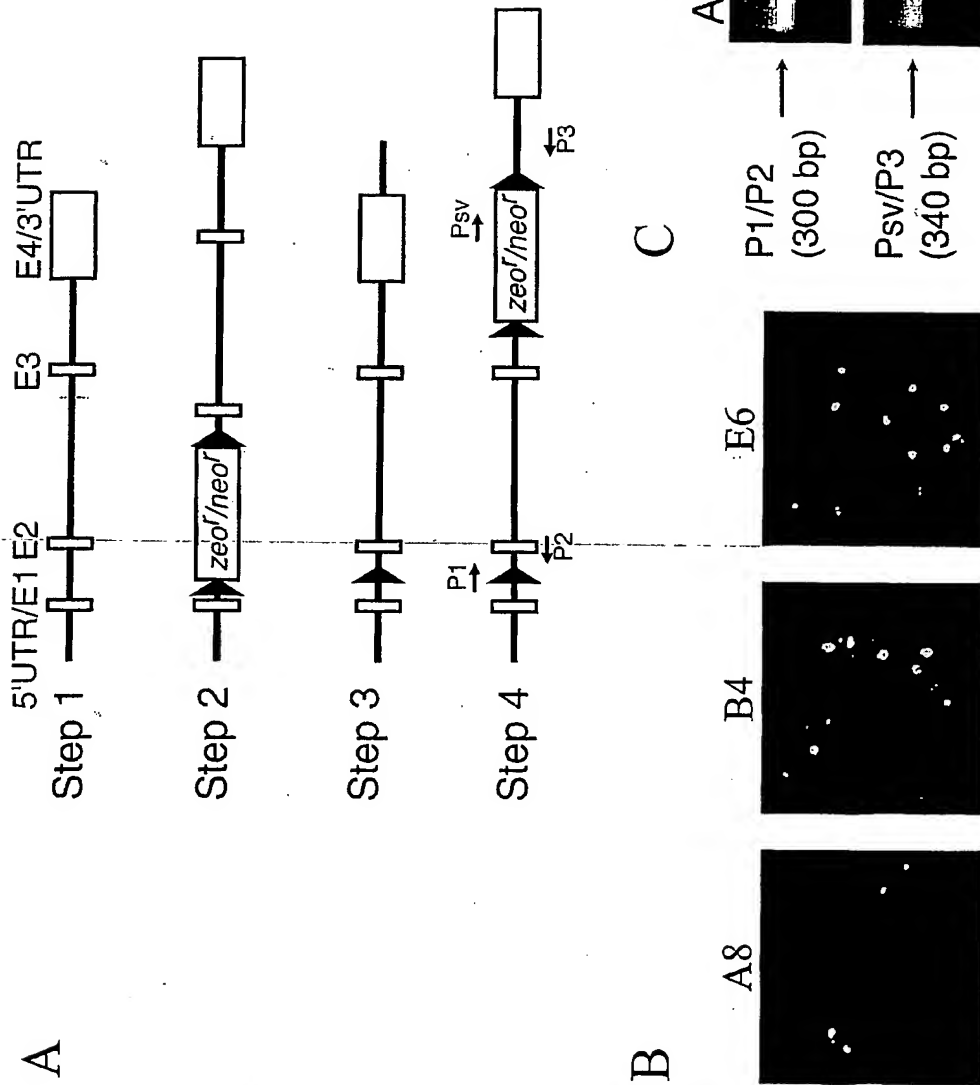


Figure 16

Figure 17



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